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ANALYSIS OF BROWNFIELDS CLEANUP ALTERNATIVES

Focal Point Community Campus
3233 West 31st Street
Chicago, Illinois

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Table of Contents

1.0 INTRODUCTION AND BACKGROUND	4
1.1. SITE LOCATION.....	4
1.2. PREVIOUS SITE USE(S) AND ANY PREVIOUS CLEANUP/REMEDATION.....	4
1.3. SITE ASSESSMENT FINDINGS	5
1.4. PROJECT GOALS	6
2.0 APPLICABLE REGULATIONS AND CLEANUP STANDARDS	7
2.1. CLEANUP OVERSIGHT RESPONSIBILITY.....	7
2.2. CLEANUP STANDARDS FOR MAJOR CONTAMINANTS	7
2.3. LAWS AND REGULATIONS APPLICABLE TO CLEANUP	7
3.0 EVALUATION OF CLEANUP ALTERNATIVES	8
3.1. CLEANUP ALTERNATIVES CONSIDERED.....	8
3.2. COST ESTIMATE OF CLEANUP ALTERNATIVES	8
3.2.1. Effectiveness:	8
3.2.2. Implementability:	9
3.2.3. Cost:	10
3.3. RECOMMENDED CLEANUP ALTERNATIVE	10

1.0 INTRODUCTION AND BACKGROUND

1.1. Site Location

The Site is located at 3233 West 31st Street in Chicago, Cook County, Illinois (the Site). The Site encompasses approximately 10.8 acres identified by Cook County Parcel No. 16-35-201-012.

1.2. Previous Site Use(s) and Any Previous Cleanup/Remediation

Based on a review of provided reports prepared for the Site, it appears that the Site consisted of undeveloped land on the northern portion while the southern portion consisted of the West Branch of the South Branch of the Chicago River from at least 1885 through 1901. By 1910, the northern portion of the Site was improved with the original portions of the Liquid Carbonic Co. factories which were expanded by 1919 to include railroad sidings and additional structures. The factories were expanded a second time by 1951 to include an administrative building and garage. The West Branch of the South Branch of the Chicago River was brought to grade by 1951 with unknown materials. The Site was purchased by the Chicago Board of Education in 1958 and operated as the Washburne Trade School until 1996. The on-site structures were demolished between 2007 and 2009 and the Site has remained vacant land with remnant foundations since that time. During its operation as the Liquid Carbonic Co. and Washburne Trade School, the Site utilized a transformer building, machine shops, freight warehouse, and numerous underground storage tanks (USTs) containing heating oil, solvents, crude oil, and gasoline that were identified through review of regulatory and City records. Eight on-site USTs were removed in 2010; however, information regarding the removal of the remaining four USTs documented at the Site was not identified.

The Site was enrolled into the Illinois Environmental Protection Agency (IEPA) Site Remediation Program (SRP) in June 2003. Subsurface investigations conducted as part of the 2003 enrollment identified polynuclear aromatic hydrocarbons (PNAs) and benzene impacts at the Site. All subsurface investigation activities at the Site appeared to have ceased between 2003 and 2010 when two heating oil releases were reported during UST removal activities. Heating oil letters were issued in 2011 as the owner/operator elected not to proceed with cleanup through the IEPA Leaking Underground Storage Tank (LUST) Program. A Phase II ESA performed in 2013 identified PNAs, arsenic, mercury, and lead above various Tier I SRO exposure routes as well as PNAs and lead above Class II Groundwater Remediation Objectives (GROs) at the Site. Soil gas sampling performed in 2018 did not identify constituents of concern above the Tier I Soil Gas Remediation Objectives (SGROs) at the five sampled locations across the Site. The Site was re-enrolled in the IEPA SRP on May 24, 2021 and subsequent subsurface investigations identified TCE, various SVOCs/PNAs, benzo(a)anthracene, arsenic, and mercury above Tier I Soil Remediation Objectives (SROs) for various exposure pathways. The CSIR/ROR/RAP is currently being reviewed by the IEPA SRP. Proposed terms and conditions of the remedial activities and ultimate closure would include installation and maintenance of engineered barriers to eliminate exposure pathways, a construction worker health and safety plan, future structures shall feature a full concrete slab or full concrete basement with no sumps, and use of the existing City of Chicago's groundwater use restriction ordinance. The anticipated terms and conditions of the regulatory closure would allow residential use of the Site.

The following recent assessments have been conducted at the Site:

- Phase II Environmental Site Assessment dated July 2013 and prepared by GSG Consultants, Inc. (GSG).

- Limited Soil Vapor Sampling/Indoor Air Exposure Route Assessment dated February 12, 2018 and prepared by GSG.
- Phase I Environmental Site Assessment dated May 5, 2021 and prepared by True North Consultants, Inc. (True North).
- Phase I Environmental Site Assessment dated March 9, 2022 and prepared by True North.
- Site Investigation Work Plan dated May 13, 2021 and prepared by True North.
- Site Investigation Work Plant Response & Addendum dated August 3, 2021 and prepared by True North.
- Combined Comprehensive Site Investigation Report, Remedial Objectives Report, and Remedial Action Plan (CSIR/ROR/RAP) dated November 19, 2021 and prepared by True North.
- CSIR/ROR/RAP – IEPA Conditional Approval Letter Response dated April 11, 2022 and prepared by True North.

1.3. Site Assessment Findings

The Phase II ESA completed by GSG identified the following impacts at the Site:

- Several PNAs were detected in exceedance of the Tier I Residential SROs as well as Tier I SROs for the soil component of the groundwater ingestion exposure route for Class I/II Groundwater. Arsenic, lead, and mercury exceeded their respective Tier I SROs for the residential ingestion exposure route.
- Lead and mercury exceeded their respective Tier I SROs for the construction worker ingestion exposure route. Mercury also exceeded its Tier I SRO for the construction worker inhalation exposure route.
- Several PNAs were detected in exceedance of the Class II GROs. Lead also exceeded its Class II GRO.
- Nine metallic anomalies were identified across the Site during an electromagnetic survey.

The Limited Soil Vapor Sampling/Indoor Air Exposure Route Assessment completed by GSG did not identify soil vapor concentrations of VOCs, naphthalene, mercury, or PCBs above respective Tier I SGROs.

The Phase I ESAs completed by True North identified the following *recognized environmental conditions* in connection with the Site:

- The historical use of the Site based on the identified impacts within fill materials across the Site and near USTs, historical and potential orphaned UST systems, nature and duration of industrial operations.
- The non-native fill material used to bring the former West Branch of the South Branch of the Chicago River to existing grade based on the unknown source, composition, and time period of backfilling.

The Phase I ESAs also identified several off-site *recognized environmental conditions* at adjoining properties, including former foundry operations, historical and current industrial uses, unresolved LUST incident, former filling station operations, automotive repair operations, active SRP remedial efforts, hazardous waste generation, etc.

The CSIR/ROR/RAP completed by True North identified the following impacts at the Site:

- One VOC, specifically TCE, was detected in exceedance of the Tier I Residential SROs for the outdoor inhalation, construction worker inhalation, and SCOG exposure pathways.
- Several SVOC/PNA constituents were detected in exceedance of the Tier I Residential SROs for soil ingestion exposure pathway. Benzo(a)anthracene was also detected in exceedance of the Tier I Residential SRO for the soil component of the groundwater ingestion exposure pathway.
- Arsenic and mercury were detected in exceedance of the Tier I Residential SROs for soil ingestion and construction work inhalation exposure pathways.

Based on the analytical results and detected concentrations, contaminants at the Site are attributed to hazardous substances associated with the historical use of the Site.

1.4. Project Goals

The Site is currently zoned as within the commercial, manufacturing, and employment district (C3-3). The project goal is to complete the necessary remedial activities in order to receive regulatory closure in the form of a comprehensive NFR letter from the IEPA, which includes installation of new hardscape (i.e. concrete, asphalt) and clean soil as engineered barriers as well as adherence to the City of Chicago's groundwater use ordinance. The planned redevelopment is a mix of medical (hospital), recreational facilities, and commercial/retail operations as part of a larger 32-acre redevelopment called the Focal Point Community Campus. Various parking areas are included as part of the redevelopment plan. The Campus will be located at the southwest corner of 31st Street and South Kedzie Avenue and will provide healthcare, recreational, institutional, retail, and mixture of housing to local residents. The Campus is intended to be self-sustaining from income generated by on-Site services and will serve as a model for redevelopment project nationwide.

2.0 APPICABLE REGULATIONS AND CLEANUP STANDARDS

2.1. Cleanup Oversight Responsibility

Chicago Southwest Development Corporation (CSDC) is responsible for contracting with an environmental consultant qualified to perform the oversight of remedial actions outlined within the Remedial Action Plan (RAP) at the Site during construction. The qualified environmental consultant will be responsible for coordinating the assembly of all required environmental documentation with the contractor(s) for remedial work and will submit a Remedial Action Completion Report (RACR) to the IEPA to secure a Comprehensive NFR letter for the Site.

2.2. Cleanup Standards for Major Contaminants

Site cleanup activities will be completed in accordance with 35 Illinois Administrative Code (IAC) Part 740 Site Remediation Program (SRP) and Part 742 Tiered Approach to Corrective Action Objectives (TACO) requirements. A Comprehensive NFR letter meeting Residential SROs will be issued upon implementation of the Remedial Action Plan (RAP) during construction activities at the Site.

2.3. Laws and Regulations Applicable to Cleanup

Site cleanup activities will be performed in accordance with the following applicable laws and regulations: the Federal Small Business Liability Relief and Brownfields Revitalization Act, the Federal Davis-Bacon Act, 35 IAC Part 740 (SRP) and Part 742 (TACO), etc. All appropriate permits will be obtained prior to commencing work. These permits may include notifications to the City and state agencies, soil transport/disposal manifests, etc.

3.0 EVALUATION OF CLEANUP ALTERNATIVES

3.1. Cleanup Alternatives Considered

1. Alternative 1 – No Action;
2. Alternative 2 – In-situ treatment, containment, and/or removal of soil and/or groundwater for on-site or off-site disposal/treatment; and,
3. Alternative 3 – Utilization of Environmental Land Use Control(s) and Risk-Based Closure.

3.2. Cost Estimate of Cleanup Alternatives

3.2.1. Effectiveness:

1. Alternative 1 – No Action.

This alternative action is not effective as it does not address the environmental impacts identified at the Site. The no action alternative does not eliminate human exposure pathways to contamination.

2. Alternative 2 – In-situ treatment, containment, and/or removal of soil and/or groundwater for on-site or off-site disposal/treatment.

This alternative action would include in-situ treatment of contaminated soil and groundwater to eliminate human exposure pathways. In-situ treatment would be performed until confirmatory analytical soil and groundwater results indicate concentrations of contaminants are below the most stringent Tier I SROs for residential properties. This alternative action would also include removal of building foundations and concrete/asphalt ground cover across the entire Site. Subsurface soils from areas exceeding Tier I SROs for residential ingestion exposure pathways would be excavated to a minimum of 14 feet below ground surface (bgs) for off-Site disposal at a Subtitle D Landfill. A select area exceeding Tier I SROs for residential ingestion exposure pathways would be excavated to a minimum of 22 feet bgs for off-Site disposal at a Subtitle D Landfill. Subsurface soils from areas exceeding Tier I SROs for residential outdoor inhalation exposure pathways would be excavated to a minimum of 10 feet bgs for off-Site disposal at a Subtitle D Landfill. Excavation of the entire Site would eliminate the inhalation and ingestion exposure pathways. Upon completion of excavation activities, the Site would be brought to grade by importing clean soil that meets Part 742 requirements. Issuance of an NFR letter for the Site will be dependent upon the results of additional investigations and associated soil excavation, utilizing the City of Chicago's groundwater ordinance, and potential off-Site notifications.

3. Alternative 3 – Utilization of Environmental Land Use Controls & Risk-Based Closure

This alternative action would involve installation of new hardscape (i.e. concrete, asphalt) and clean soil engineered barriers to eliminate exposure to the soil ingestion and outdoor inhalation exposure pathways. The various materials will form a contiguous engineered barrier meeting the requirements of 742 Subpart K and remain in place on a permanent basis. Any clean fill brought to the Site will be composed of engineered aggregate fill or soil meeting the most stringent Tier I

SROs for residential properties. Proposed landscaped areas will be underlain by a 3-foot clean soil fill to eliminate the outdoor inhalation exposure pathway, with the exception of alternative barrier locations that are located outside of the construction Phase 1 and intended for open space/landscaping. These areas will utilize an alternative engineered barrier consisting of a geotextile membrane overlain by a minimum of 18-inches of clean engineered aggregate, clean soil, and/or topsoil that has been placed over the existing surface materials. To address exceedances of the outdoor inhalation exposure pathway in areas not featuring a hard-scape surface (i.e. building foundation, concrete or asphalt), a minimum of 10' of clean fill is proposed. To eliminate exposure to groundwater exceeding the Class II SCOG ROs, the Site will utilize the groundwater use restriction adopted by the City of Chicago and approved by the IEPA as an acceptable institutional control to eliminate the groundwater ingestion exposure route. Further assessment of groundwater conditions will not be necessary due to the proposed use of the City of Chicago's groundwater use restriction and location of the Site within the City of Chicago's municipal limits. A site-specific health and safety plan will be developed and implemented prior to initiation of subsurface work or excavation activities. Selective soil removal may occur as part of this alternative i.e. extensive soil removal for excavation of sub-grade basement foundation and sub-grade utility tunnels for the proposed hospital building; however, extent of the soil removal will be evaluated during the final construction planning process. The Site will be issued a comprehensive No Further Remediation letter by the IEPA that outlines the proposed engineered and institutional controls discussed above. Based on the proposed engineered and institutional controls at the Site, the Site will be approved for residential land uses

3.2.2. Implementability:

1. Alternative 1 – No action.

The no action alternative is easy to implement as there are no actions being conducted.

2. Alternative 2 – In-situ treatment, containment, and/or removal of soil and/or groundwater for on-site or off-site disposal/treatment.

This alternative will be effective in accordance with state and local regulations since impacted soils will be treated in-situ and/or removed to depths of 14 and 22 feet bgs, ultimately reducing exposure to impacted soils above Tier I SROs. This alternative will not be timely as in-situ treatment may take up to 10 years to effectively reduce contamination below Tier I SROs and costly as the entire Site will be excavated.

3. Alternative 3 – Utilization of Environmental Land Use Controls & Risk-Based Closure.

This alternative will be the most cost-efficient approach for addressing impacts and securing an NFR Letter. By utilizing hardscape (i.e. concrete, asphalt, building foundation) proposed during Phase 1 construction activities as engineered barriers, Alternative 3 will address contamination exposure risks, satisfy local and state regulatory requirements, and minimize the need to excavate contaminated soil for off-Site disposal/treatment. For the purpose of evaluating the costs below and based on the available information provided to date, areas of the Site exceeding Tier I SROs proposed for landscaping or permeable berms will be excavated and backfilled with clean soil for this alternative action.

3.2.3. Cost:

1. Alternative 1 – No action.

There will be no costs incurred through the no actions alternative.

2. Alternative 2 – In-situ treatment, containment, and/or removal of soil and/or groundwater for on-site or off-site disposal/treatment.

The Site is approximately 10.8-acres. In-situ treatment of soil and groundwater at the Site may take up to 10 years to complete. A qualified environmental consultant would need to be contracted to perform monthly, quarterly, and/or annual treatment as well as provide documentation of each treatment event. Excavation of the soils exceeding Tier I SROs for residential ingestion exposure pathways 10 feet bgs would result in approximately 115,712 cubic yards of soil with an additional area of approximately 28,518 cubic yards of soil excavated to 22 feet bgs excavated for disposal at a Subtitle D Landfill and brought back to grade with clean soil. Excavation of the soils exceeding Tier I SROs for residential outdoor inhalation exposure pathways 10 feet bgs would result in approximately 19,226 cubic yards of soil excavated for disposal at a Subtitle D Landfill and brought back to grade with clean soil. Excavated soil and disposal will be charged at \$80/cubic yard and clean soil will be imported at \$55/cubic yard. This alternative would cost approximately \$22.1 million to complete for the Site.

3. Alternative 3 – Utilization of Environmental Land Use Controls & Risk-Based Closure.

This alternative focuses on utilizing engineered barriers consisting of concrete, asphalt, and building foundations planned as part of the proposed redevelopment/construction of the Site. Soils in exceedance of the Tier I SROs for residential ingestion in areas of proposed landscaping or permeable berms will be covered with a 3-foot clean soil engineered barrier. Soils in exceedance of the Tier I SROs for residential outdoor inhalation in areas of proposed landscaping or permeable berms will be covered with a 10-foot clean soil engineered barrier. Areas of the Site exceeding Tier I SROs proposed for landscaping or permeable berms will require clean soil import (approximately 49,037 cubic yards). Clean soil will be imported at \$55/cubic yard. A Construction Worker Health & Safety Plan will be developed and include worker monitoring and modified work practices. Development of the plan is estimated to cost \$20,000. Utilizing engineered barriers (i.e. concrete, asphalt, and proposed building foundation), IEPA-approved new engineered barriers (i.e. 3-foot clean soil barriers), implementing the City of Chicago's groundwater ordinance at the Site, and worker caution notification will be included as part of the final NFR letter for the Site. This alternative would cost approximately \$2.7 million dollars to complete for the Site.

3.3. Recommended Cleanup Alternative

Based on the effectiveness, ability to implement, and cost, True North recommends utilizing Alternative 3 – Utilization of Environmental Land Use Control(s) & Risk-Based Closure as the proposed cleanup action. This alternative action will address soil contamination and groundwater contamination without excavating the Site. This alternative action also utilizes proposed building foundations, concrete/asphalt barriers, and clean fill as engineered barriers to eliminate exposure pathways, as well as implements institutional controls to further reduce exposure pathways and results in the issuance of final Comprehensive NFR letter meeting Residential SROs.